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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MOE, AUNG SOE	
ART UNIT	**PAPER NUMBER**
2612	

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/927,632	MATSUNAGA ET AL.	
	Examiner	Art Unit	
	Aung S. Moe	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *20 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *67-104* is/are pending in the application.

4a) Of the above claim(s) *73,74 and 81-104* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *67-72 and 76-80* is/are rejected.

7)☒ Claim(s) *75* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/022,339.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Figs. 35-36 and claims 7, 37, 38, 67-80 and 87 in the reply filed on 9/20/2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

In addition, it is noted that the elected claims 7, 37 and 38 have been canceled by the Preliminary Amendment filed on 12/6/2001 (i.e., **In page 30 of the preliminary amendment filed on 12/6/01, it is stated that "Please cancel claims 1-66 without prejudice)** which requested the cancellation of claims 1-66 without prejudice, thus, the election of claims 7, 37 and 38 are considered improper, because claims 1-66 are no longer pending in the application. In view of this, **the election of claims should be listed as claims 67-80 and 87** corresponding to the elected species of Figs. 35 and 36.

Moreover, it is noted that not all elected claims are directed to an elected Species of Figs. 35 and 36. In particular, claim 73 is directed to Species of Fig. 37 (i.e., noted the source follower circuit 28-1 connected between the image sensor P and the clamp capacitor 131) and claim 74 is directed to Species of Fig. 52 (i.e., noted the use of "a correction capacitor 201" of Fig. 52). In addition, elected claim 87 is depending to non-elected claim 86.

Claims 73, 74 and 87 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected Species of Figs. 37 and 52, and a non-elected claim 86,

there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9/20/2004.

In view of the above, only Claims 67-72 and 75-80 are corresponding to the elected Species of Figs. 35 and 36.

Terminal Disclaimer

2. The terminal disclaimer filed on 2/15/2002 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Pat. No. 6,091,449 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 67-72 and 76-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Akimoto et al.** (U.S. 5,144,447) in view of **Akiyama et al.** (U.S. 4,805,025).

Regarding claim 67, Akimoto '447 discloses an image system (Fig. 7, 33 and 34) comprising: a one-dimensional array of image sensors (i.e., noted that each pixel unit as shown in Fig. 7 is in a one-dimensional array) configured to photoelectrically convert an optical image into an electrical signal corresponding to a light amount of the optical image in units of the image sensor (i.e., col. 1, lines 15+ and col. 2, lines 15+); and each of the image sensors comprising a photoelectric converter (i.e., the element 1 of Fig. 7), an amplification transistor (i.e., Fig. 7, the element 12) having a gate to which said photoelectric converter (1) is connected through a transfer transistor (11) and for amplifying an output signal from said photoelectric converter (1) and outputting the electrical signal, a selection transistor (14/22) having a gate to which a selection signal is supplied (i.e., noted the signal supplied to the gate of transistor 14/22), and a reset transistor (13) connected to a connection point between said amplification (12) and said transfer transistor (11); and noise cancellers, each of which is connect to an image sensor and subtract a noise component from the electrical signal (i.e., noted the source follower circuits coupled to each of the output line 7 of the image sensors; see col. 8, lines 15-68).

Furthermore, it is noted that although Akimoto '447 discloses the use of the noise cancellers (col. 8, lines 55+) at the output of the image sensor (as shown in Figs. 7, 14-17, and 29-32B) for canceling the noise generated from the image sensor (i.e., col. 1, lines 10+),

Akimoto '447 does not explicitly show that the noise cancellers comprising " a sample/hold capacitor to which the electrical signal output from the image sensor is supplied through a clamp capacitor and a sample/hold transistor, and a clamp transistor connected to a connection point between the clamp capacitor and the sample/hold transistor" as recited in present claimed invention.

However, the above mentioned claimed limitations are well-known in the art as evidenced by Akiyama '025. In particular, Akiyama '025 teaches that in order to suppress the increasing of the noise components produced during read-out of the signal from the solid-state imager (see col. 3, lines 40+), it is desirable and well-known to use the noise canceller circuit comprising a sample/hold capacitor (i.e., Figs. 7 & 9, the element 57) to which the electrical signal output from the image sensor (i.e., CCD 3) is supplied through a clamp capacitor (i.e., Figs. 7 & 9, the element 56) and a sample/hold transistor (i.e., Figs. 7 & 9, the element 59; col. 3, lines 15+, col. 6, lines 45+), and a clamp transistor (i.e., Figs. 7 & 9, the element 58) connected to a connection point between the clamp capacitor (56) and the sample/hold transistor (59) as recited in claim 7.

In view of the above, having the system of Akimoto '447 and then given the well-established teaching of Akiyama '025, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Akimoto '447 as taught by Akiyama '025, since Akiyama '025 stated at column 4, lines 15+ that such a modification would eliminate all variety of noise components produced during the signal read-out operation, whereby a high S/N ratio can be obtained to a great advantage.

Regarding claim 68, it is noted that although combination of Akimoto '447 and Akiyama '025 show the output image signal from the image sensor free of noise components, the combination of Akimoto '447 and Akiyama '025 does not explicitly show the use of a monitor for displaying the output image signal as claimed. However, the Examiner takes an Official Notice that the use of a monitor in the camera system for displaying the output image free of noise component is well-known in the art for the purpose of allowing the camera's user to monitor the quality of image captured by the camera, thus, it would have been obvious to one having ordinary skill in the art at the time of the invention was made provide a well-known display device to the system of Akimoto '447 so that it would permit the camera's user to monitor the quality of image captured by the camera.

Regarding claim 69, it is noted that although combination of Akimoto '447 and Akiyama '025 show the output image signal from the image sensor free of noise components, the combination of Akimoto '447 and Akiyama '025 does not explicitly show the use of a printer for printing the image signal as claimed. However, the Examiner takes an Official Notice that the use of a printer in the camera system for printing the output image free of noise component is well-known in the art for the purpose of allowing the camera's user to obtain the hard copy of image captured by the camera, thus, it would have been obvious to one having ordinary skill in the art at the time of the invention was made provide a well-known printer device to the system of Akimoto '447 so that it would permit the camera's user to obtain a hard copy of good quality image captured by the camera.

Regarding claim 70, the combination of Akimoto '447 and Akiyama '025 show wherein said selection transistor (14/22) selectively turns on said amplification transistor (12) (i.e., see col. 8, lines 30-50 of Akimoto '447; see Figs. 3, 4, 6 and 10 of Akiyama '025).

Regarding claim 71, the combination of Akimoto '447 and Akiyama '025 show wherein said reset transistor (i.e., the transistor 13 of Akimoto '447; and the transistor 32 of Akiyama '025 as shown in Fig. 2) selectively resets the gate of said amplification transistor (i.e., noted the amplification transistor 12 of Akimoto '447; and col. 8, lines 10+; and the amplification of transistor 31 and see Figs. 3, 4, 6 and 10 of Akiyama '025).

Regarding claim 72, the combination of Akimoto '447 and Akiyama '025 show wherein said sample/hold capacitor (i.e., noted the capacitor Csh 57 as shown in Fig. 7of Akiyama '025) comprises a first terminal connected to the sample/hold transistor (i.e., the transistor 59 as shown in Fig. 7 of Akiyama '025) and a second terminal connected to a ground potential (i.e., noted the transistor 59 of Akiyama '025).

Regarding claim 76, the combination of Akimoto '447 and Akiyama '025 show wherein said S/H capacitor (57 of Akiyama '025) and said clamp capacitor (56 of Akiyama '025) are stacked on each other.

Regarding claim 77, the combination of Akimoto '447 and Akiyama '025 show wherein said image sensors are two-dimensionally arrayed (i.e., see col. 8, lines 5-10 of Akimoto '447).

Regarding claims 78-80, it is noted that claims 78-80 are corresponding to claims 67-72 and 76-77 as discussed above, thus, claims 78-80 are rejected for the same reasons as discussed above for claims 67-72 and 76-77 (i.e., please see Examiner's comment above).

Allowable Subject Matter

6. Claim 75 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aung S. Moe whose telephone number is 703-306-3021. The examiner can normally be reached on Mon-Fri (9-5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929 (or 571-272-7308). The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aung S. Moe
Primary Examiner
Art Unit 2612

A. Moe
February 3, 2005